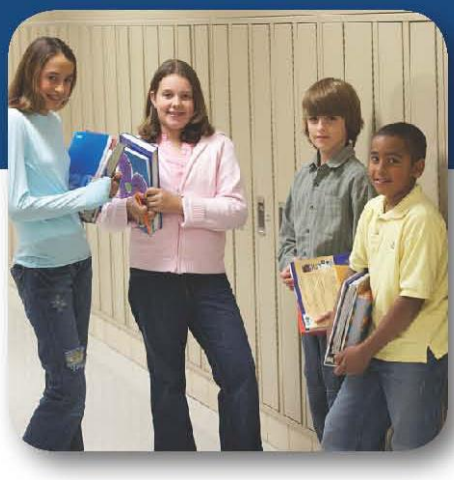
Deciding on Computer-Based Testing



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DATA RECOGNITION
DRC
CORPORATION

QUESTIONNAIRE OVERVIEW

This document is a guide for evaluating a site's ability to administer DRC's computer-based assessments. The questions are designed to assess the various factors that sites should consider when making the decision to administer computer-based testing.

The questions are organized by the following categories:

Categories

- Technology – Device Setup
- Technology – Network Configuration
- Technology – TSM Setup
- Training

The more boxes checked, the more likely a site will be able to deliver a successful student testing experience with computer-based testing.

CATEGORIES OVERVIEW

Assessing the following categories will help sites determine readiness to deliver computer-based testing.

Technology

Determining the availability of supported devices and required peripherals as well as determining whether the network infrastructure is sufficient to administer computer-based assessments are key factors for delivering a good student experience.

- **Testing Device**
  - Does the site have supported testing devices required for computer-based testing?
  - Does the site have enough testing devices to complete computer-based testing during the allowed testing window?
- **Testing Site Manager (TSM)**
  - Does the site have the required device(s) to run the number of Testing Site Managers required to support the site's computer-based testing?
- **Network Configuration**
  - Does the site have the network **capacity** and **reliability** (Wireless, LAN, WAN, and Internet) to support the number of students that will be testing at one time?

Training

Another important factor in successful computer-based testing is adequately preparing those involved in delivering and taking the tests. Will the site have adequate time for **students**, **educators,** and **technology support staff** to review the necessary training materials and become familiar with the technology used for computer-based testing?

Deciding on Computer-Based Testing Questions	
	TECHNOLOGY – TESTING DEVICE
☐	Taking into account potential movement, can an estimated number of students who will be taking computer-based testing be determined?
☐	Using the estimated number of students and the length of the test window, determine how many students will need to test each day. Keep in mind other activities occurring at the site that may affect access to testing devices and/or may limit available network bandwidth. Does the proposed computer-based testing site have adequate rooms or appropriate spaces to conduct testing?
☐	After reviewing the DRC INSIGHT System Requirements, does the site have testing devices available that meet the system requirements and, if so, how many?
☐	After determining the number of devices needed to complete computer-based testing and the number of students a site needs to test, does the site have adequate numbers of supported devices to deliver computer-based testing within the test window? Determine the number of computer-based tests a site can support using the following variables: ❖ Number of testing devices available at the site that meet the system requirements ❖ Number of hours a testing device can be used in a day ❖ Number of days in the test window a site plans to test ❖ Number of hours each test part requires **Simple Example Calculation:** 20 computers × 6 hours per day = 120 total hours/day 120 total hours per day × 24 days = 2880 total testing hours 2880 total hours/2 hours for a test = 1440 total test parts the site could support Determine the number of expected test parts using the following variables: ❖ Number of students to be tested ❖ Number of test parts each student will be taking **Simple Example Calculation:** 600 Students x 2 test parts each = 1200 total test parts Is the number of expected test parts less than the number of total tests the site can support? The formula is more complicated when a site is planning to test multiple subjects and grades since testing times vary by subject and grade. DRC has devised a simple calculation tool called the ***Computer Usage Estimator*** that can further help districts and schools to determine if there are enough devices to deliver computer-based testing. The ***Computer Usage Estimator*** can be used to plan for a whole site or individual testing labs.
☐	Does the site have adequate numbers of technology peripheral equipment (headsets, mice, iPad stands, keyboards, etc.) to deliver computer-based testing within the test window?
	TECHNOLOGY – TESTING SITE MANAGER (TSM)
☐	After reviewing the DRC INSIGHT System Requirements, does the site have TSM capable device(s) available that meet the system requirements?
☐	Does the site have adequate support staff for the installation and maintenance of a TSM?

Deciding on Computer-Based Testing Questions	
	TECHNOLOGY – NETWORK CONFIGURATION
☐	Review entire district and school network (LAN, WAN, and ISP) **capacity** to administer computer-based testing. Verify there is available capacity for the number of students taking the test at the same time. Take into account competing Internet bandwidth and other traffic in the building at the time of testing. Estimated available bandwidth needed from **Testing Client** to **Test Content** (test content could be on a local TSM at the site, on a central TSM at another site or at DRC if there is not a content caching TSM)**:** ❖ Up to 25 Concurrent Testers: 50 Mb ❖ 26–150 Concurrent Testers: 100 Mb ❖ 151–500 Concurrent Testers: 200 Mb Using the ***Capacity Estimator*** to help determine bandwidth requirements, is the available bandwidth for the school sufficient to support computer-based testing and the number of students testing at one time?
☐	Connection and bandwidth requirements are greatest at the beginning of the test when the student is logging in to the test and the test engine and test content are being downloaded to the testing device. This process requires a connection from the testing device back to DRC. Does the district and school network have the **reliability** (LAN, WAN, and ISP) needed to administer computer-based testing?
☐	After the test has started the requirements for testing are significantly reduced and the use of the Testing Site Manager (TSM) would remove the need to connect back to DRC during the test. If Internet connectivity during the test is potentially going to be inconsistent, is there the ability to install and support a TSM at the site?
☐	Are the firewall and filters on the computer network configurable to allow communication with the online servers and can the necessary URLs be whitelisted?
☐	Can the site leverage network shaping to give DRC INSIGHT testing traffic priority over other network traffic?
☐	Will you be able to influence other use of the network during testing, like limiting the amount of high-bandwidth activities such as downloading and watching videos?
☐	If the site is leveraging wireless connectivity, complete a wireless site survey to assess sufficient wireless coverage in testing areas. Areas to review include: **Device Density**: Review the number of devices connecting to a single access point. Keep in mind that devices connecting to the access point might not be in the same room where the testing will take place. If the site has an open network or available guest network, account for devices that students, proctors, and teachers have connected (e.g. smartphones, laptops, and tablets). **Radio Frequency Interference**: Review whether there may be other devices that could cause interference. Wireless networks share the same frequency used by many technologies and any of these devices operating at the same frequency as an access point can cause interference. In addition, wireless access points sharing the same channel might interfere with each other. **Connection consistency**: Consider things that may interrupt the connection between the testing device and the access point. Review if there are objects obstructing the line of sight between testing devices and access points that could interrupt the connection. Also consider if there are multiple access points that can lead to momentary interruptions as a testing device moves from one to another. **2.4GHz vs. 5GHz Bands**: Assess whether the site's wireless network is using either the 2.4GHz or 5GHz bands appropriately. Wireless networks operate in either 2.4GHz or 5GHz band. The 5GHz connection can transmit higher amounts of data with better speeds, however, the 2.4GHz connection is better suited for transmitting data over longer ranges and through walls and other solid objects. After this survey, is the site's wireless capacity adequate to support computer-based testing?

Deciding on Computer-Based Testing Questions	
	TRAINING
☐	Student readiness – Do students have opportunities to use the technologies that will be employed during testing and become comfortable with the technology? (e.g., testing devices, keyboards, headsets, etc.)
☐	Student readiness – Will students be given sufficient time to practice taking the tests through the Online Tools Training so they are familiar with the testing application before they take the test?
☐	Educator readiness – Will educators be allowed the time necessary to effectively and routinely employ the technology used during testing?
☐	Technology Staff readiness – Will technology staff be allocated sufficient time to understand the technology infrastructure requirements as well as to understand what is necessary to properly install and configure the environment?